DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
Human Engineering Design Approach Document - Maintainer	DI-HFAC-80747A

3. DESCRIPTION/PURPOSE

3.1 The Human Engineering Design Approach Document - Maintainer (HEDAD-M) describes equipment which interface with maintainers.
3.2 This document provides a source of data to evaluate the extent to which equipment having an interface with maintainers meets human performance requirements and human engineering criteria.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
940526	MI		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the HEDAD-M resulting from the work tasks delineated in 5.1.2 and 5.2 of MIL-STD-46855.

7.2 Not for use by the Army.

7.3 This DID supersedes DI-HFAC-80747.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		A7026

10. PREPARATION INSTRUCTIONS

10.1 Reference documents. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions shall be as specified in the contract.

10.2 General. The HEDAD-M shall describe the characteristics, layout, and installation of all equipment having a maintainer interface (excluding depot level maintenance actions); it shall also describe maintainer tasks associated with the equipment. The HEDAD-M shall describe the extent to which the requirements of MIL-STD-1472 and other applicable human engineering documents specified in the contract have been incorporated into the design, layout, and installation of equipment having a maintainer interface. Results from analysis of maintainer tasks shall be presented as part of the rationale supporting the layout, design, and installation of the equipment. The requirement for this information is predicated on the assumption that as analytic and study information, it is developed sufficiently early to influence the formulation of other system data such as maintenance allocation charts, special repair parts, tool lists, and Logistic Support Analysis Record (LSAR) data. If the program has progressed to the point where the required data is available through other reporting

(Continued on Page 2)

11. DISTRIBUTION STATEMENT

)ISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Block 10, PREPARATION INSTRUCTIONS (Continued)

media, such as those noted above, a Task Inventory Report (DI-ILSS-81152) or Task Performance Analysis Report (DI-HFAC-81197) shall not be duplicated, but shall be referenced or appended to the HEDAD-M along with appropriate supplementary information fulfilling the intent of this provision.

10.3 Format. The HEDAD-M format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions. The HEDAD-M format shall present the information in two major parts:

a. Information pertaining to maintenance actions performed at the organizational level.

b. Information pertaining to maintenance actions performed at the Field/Intermediate Maintenance Activity (IMA) level.

10.4 Content. The HEDAD-M shall contain the following:

10.4.1 Equipment list. A list of each item of equipment having a maintainer interface at the Organizational and Field/IMA level, and a brief statement of the purpose of each item of equipment and types of maintenance required on each item of equipment (e.g., troubleshoot, remove, inspect, test, repair).

10.4.2 Specification and drawing list. A list of specifications and drawings, approved by human engineering at the time of HEDAD-M preparation. The list shall also address documents where human engineering approval is planned.

10.4.3 System equipment description. Description(s) of system equipment, emphasizing human engineering design features. The following aspects of each crew station shall be described:

10.4.3.1 Layout and arrangement. The location and layout of all system equipment requiring maintenance with emphasis on human engineering features which facilitate maintenance. Equipment located in areas assessed through common doors, panels, openings, etc., shall be indicated. The location of each item of equipment shall also be noted in terms of three-dimensional space (i.e., X, Y, and Z coordinates); the reference point for each item of equipment shall be its center as viewed by the maintainer while gaining access to the equipment.

10.4.3.2 Design of equipment. The design of each item of equipment with emphasis on human engineering features which facilitate maintenance such as handles, self-test capability, labeling, connector spacing, and keying.

Block 10, PREPARATION INSTRUCTIONS (Continued)

10.4.3.3 Installation of equipment. The installation of each item of equipment with emphasis on human engineering features which facilitate maintenance such as fasteners, clearances, relationship between accessibility and failure rate (or scheduled maintenance frequency) of each item of equipment, and visual access afforded.

10.4.4 Rationale. The specific considerations of equipment maintenance requirements (e.g., frequency, criticality, equipment failure rate), maintainer requirements (e.g., personnel selection, training, and skills), maintainer tasks requirements, environmental considerations, safety, and limitations imposed by the procuring activity or state-of-the-art. The bases for reaching specific design, layout, and installation decisions shall also be presented (e.g., MIL-STD-1472 criteria, other human engineering requirements specified in the contract, human engineering studies, trade-off analyses, mock-up results, and human engineering test results).

10.4.5 Special tools, support equipment, and aids. A list of special tools, support equipment, and job aids/devices required for maintenance of each item of equipment.

10.4.6 Analysis of maintainer tasks. Results from analysis of maintainer tasks (see 3.3 of MIL-STD-46855) shall be presented as part of the rationale supporting layout, design, and installation of items of equipment. Analysis of maintainer tasks analyses shall consist of the following: task number, task title, task frequency (for scheduled maintenance actions) or estimated task frequency (based on equipment mean-time-between-failure for unscheduled maintenance actions), data source used (e.g., drawing number, sketch number, development hardware, actual production equipment), detailed task sequence (see 3.1 of MIL-STD-46855), support equipment required, tools required, job aids required, estimated task time, estimated personnel requirements (e.g., number of personnel required, skills and knowledge required) and human engineering considerations which reflect specific human engineering requirements incorporated into the design (e.g., maintainer fatigue, potential hazards, safety or protective clothing/equipment required or recommended, access problems, maintainer communication requirements, special task sequence requirements, labeling). As applicable, the following types of maintainer tasks shall be addressed by the analyses of maintainer tasks: remove/replace, troubleshoot (fault location), repair, adjust, inspect, service, and test. Tasks requiring critical human performance (see 3.3 of MIL-STD-46855) shall be clearly identified. (See caveat end of 10.2).

10.4.7 Deviations. Narrative which provides rationale for any need to deviate from, or take exception to, MIL-STD-1472 or other contractual item human engineering requirements.

lock 10, PREPARATION INSTRUCTIONS (Continued)

0.4.8 Maintainer interface depictions. A sketch, drawing, or photograph f each item of equipment having a maintainer interface. Each item of quipment shall be depicted:

a. by itself from top, front, and side (three-view trimetric or xploded trimetric view) and

b. installed as the maintainer would normally view it during aintenance.

0.4.9 Alternative installations or layouts. A sketch, drawing, or photograph of each item of equipment being considered as an alternative to the selected, or baseline design. A sketch, drawing, or photograph of alternative equipment installations or layouts which exist at the time of HEDAD-M preparation shall also be provided.

10.4.9 Design changes. Design, installation, or layout changes which have been made since the last HEDAD-M preparation shall be described.